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Mazdoor Kisan Shakti Sangathan

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“पुराने को छोड़ नये के तरफ”

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“Step Out From the Old to the New”

IS 4705 (1985): Dental Mercury [MTD 10: Precious Metals]



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“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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IS : 4705 - 1985

Indian Standard
SPECIFICATION FOR
DENTAL MERCURY
(*First Revision*)

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR DENTAL MERCURY

(First Revision)

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Indian Standard

SPECIFICATION FOR DENTAL MERCURY

(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 31 January 1985, after the draft finalized by the Precious Metals Sectional Committee had been approved by the Structural and Metals Division Council.

0.2 Dental mercury is used for preparing dental amalgam, which is made by mixing fillings of a suitable dental amalgam alloy with mercury. Need was, therefore, felt for this standard which defines the purity of dental mercury by its surface appearance, its residue after pouring and its non-volatile residue.

0.3 This standard was first published in 1968. Based on the the experience gained during the years, the standard has been revised. In the revision MKS units have been changed to SI Units.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard specifies requirements for mercury used in the preparation of dental amalgam.

2. REQUIREMENTS

2.1 Surface — The mercury shall have a bright mirror-like surface free from film or scum when agitated in air. A slight film formed during storage shall be permitted provided it is removable by filtration of mercury as described in 3.3.1. It shall have no visible evidence of surface contamination.

*Rules for rounding off numerical values (revised).

2.2 Pouring — The mercury shall pour freely from a thoroughly-cleaned glass container, without leaving any residue adhering to the glass.

2.3 Non-Volatile Residue — The mercury shall not have a non-volatile residue of more than 0.02 percent by mass when tested in accordance with 3.3.2.

3. SAMPLING, INSPECTION AND TESTING PROCEDURES

3.1 In consignment 100 kg or part thereof constituted by containers of dental mercury shall constitute a lot. Each lot shall be tested separately for various requirements. For this purpose, from each lot one container for every 20 kg shall be opened and visual inspection shall be carried out on these containers. From each of the selected containers, 50 g of dental mercury shall be taken and these samples shall be thoroughly mixed to form a composite sample. This composite sample shall be tested for various requirements given in 3.3.

3.2 The sample tested for visual inspection as well as the tests given in 3.3 shall satisfy the relevant requirements.

3.3 Tests

3.3.1 Condition of Surface — In case the mercury has developed slight film, it shall readily be separated from this film by filtration through chamois skin or through sintered glass of average pore diameter 20 to 30 microns. When filtered the mercury shall remain bright after agitation with air.

3.3.2 Residue — The determination of non-volatile residues shall be made on specimens weighing about 15 g. The mercury shall be evaporated from a porcelain crucible at a temperature of $345^{\circ} \pm 5^{\circ}\text{C}$ and then the crucible shall be ignited at a dull red heat for approximately 2 minutes, cooled in a desiccator, weighed, and the mass of residue calculated by deducting the tare mass of the crucible.

Caution — The mercury should be evaporated in a hood to prevent inhalation of poisonous mercury vapour.

4. PACKING

4.1 The mercury shall be packed in non-metallic (such as glass or polyethylene) containers of sufficient strength to hold the contents under normal conditions of transport and handling. The containers with their closures shall be air-tight. The materials from which the containers and their closures are made shall have no deleterious effect on mercury.

5. MARKING

5.1 Each container shall be marked legibly with the following:

- a) Manufacturer's name or trade-mark,
- b) Batch number and date of packing (month and year), and
- c) Net mass in grams or kilograms of the contents.

5.1.1 Each container shall also be marked with the words ' POISON ' and ' FOR DENTAL PURPOSES ONLY '.

5.1.2 The container may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s ²
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²